

ABSTRACT OF THE DISCLOSURE

The object of the present invention is to provide a proportional valve which does not open or close by itself and is free of internal leakage. A valve element is formed integrally with a piston having a cross-sectional area equal to that of a valve hole constituting a valve seat, and a diaphragm having an outer peripheral portion secured to a body by a holder is disposed in contact with a pressure-receiving end face of the piston. The diaphragm is mounted in a displaced state such that when the valve element is seated on the valve seat, the pressure receiving area of the diaphragm is at a maximum and is equal to that of the valve element. Change in the pressure receiving area of the valve element corresponding to the lift amount thereof is canceled out by change in the pressure receiving area of the diaphragm corresponding to the amount of displacement thereof, thus preventing the valve from opening or closing by itself due to the difference between the pressure receiving areas. Also, a sliding portion of the piston is shut off by the diaphragm, whereby internal leakage can be completely prevented.